

lack of observations. The southern depression, remaining nearly stationary off the coast of Portugal, had begun to fill in, and moderate weather prevailed in the vicinity.

On the 18th the western Low was central near Belle Isle, and northerly to northwesterly gales were encountered by vessels in the southerly quadrants, the storm area extending as far south as the Bermudas.

From the 19th to the 21st moderate conditions were the rule over practically the entire ocean, although there was a slight depression between the 35th meridian and Madeira that was accompanied by winds of moderate gale force over a limited area.

On the 22d there was a Low central near St. Johns, Newfoundland, where moderate winds prevailed at time of observation, although afterwards increasing in intensity as it moved northeastward. On the 22d westerly winds of moderate gale force occurred in the Caribbean Sea, as shown by report in table.

On the 23d Nantucket was near the center of a Low, and storm reports were received from vessels in the southerly quadrants as well as those in mid-ocean.

On the 24th there was a disturbance central near Father Point that moved rapidly eastward, and on the

25th was over eastern Newfoundland. On both of these dates gales were reported from a limited region north of the 40th parallel, between the 50th and 60th meridians.

On the 26th the center of this disturbance was near Belle Isle, and moderate gales occurred in the easterly and southerly quadrants, storm reports being received from vessels as far south as the 35th parallel. The conditions changed but little during the next 24 hours, and the Low remained nearly stationary. On the 27th there was also a slight depression near 35° N., 43° W., that afterwards developed into a severe disturbance, as it drifted slowly eastward. On the 30th it was central near 37° N., 37° W., and surrounded by moderate winds. On the 27th and 28th winds of moderate gale force were encountered off the coast of Northern Europe.

On the 28th and 29th there was a "norther" in the Gulf of Mexico, where winds of gale force prevailed, accompanied by comparatively high barometric readings.

On the 30th there was a Low in the Gulf of Mexico that developed into a severe disturbance, as it moved northward along the American coast. An account of this storm will appear in the MONTHLY WEATHER REVIEW for December.

## OCEAN GALES AND STORMS, NOVEMBER, 1925

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Highest force of wind and direction	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN													
Duquesne, Am. S. S.	Manchester	New Orleans	50 04 N.	10 15 W.	1st	2 p., 1st	2d	29.07	SSE	S., 9	SW	S., 9	S.-WSW.
Westerner, Am. S. S.	Antwerp	Boston	40 15 N.	27 32 W.	1st	Noon, 2d	2d	29.58	SSW	SSW, 9	NNW	SW, 9	SW.-NNW.
Eastern Victor, Am. S. S.	Rotterdam	Philadelphia	36 34 N.	65 15 W.	3d	11 p., 3d	5th	29.78	SE	N.E., 7	E	N., 10	W.-NW.-NE.
Elbergen, Du. S. S.	Montreal	Rotterdam	52 36 N.	39 10 W.	2d	9 p., 4th	5th	29.44	WNW	W., 8	SW	WSW, 10	W.-WSW.
H. M. Story, Am. S. S.	Cristobal	Halifax	33 53 N.	68 07 W.	4th	8 a., 4th	5th	30.00	NNE	N.E., 8	NE	NE, 11	NNE.-NE.
Davison, Br. S. S.	Boston	Liverpool	48 00 N.	33 00 W.	5th	7 p., 5th	8th	28.94	ESE	S., 12	N	S., 12	S.-SW.
City of Fairbury, Am. S. S.	Antwerp	Houston	30 00 N.	58 05 W.	5th	Noon, 5th	6th	29.74	NW	N.E., 9	NNE	NNE, 9	NW.-NNE.
Gulftiquean, Am. S. S.	New Orleans	San Pedro	21 05 N.	85 00 W.	4th	5 a., 6th	7th	29.92	E	E., 8	E	E., 8	Steady.
Marguerite Finaly, Fr. S. S.	Rouen	Bermuda	31 45 N.	58 20 W.	5th	5 a., 7th	8th	29.73	NE	NNE	N	NE, 9	NE.-N.
Haarlem, Du. S. S.	Amsterdam	Cristobal	47 20 N.	10 40 W.	6th	—, 7th	10th	29.00	SW	SW., 10	WNW	W., 12	SSW.-W.
Incomore, Br. S. S.	Belfast	New York	55 13 N.	14 57 W.	6th	8 a., 7th	9th	29.07	NW	E., 10	NW	NE, 10	SE.-E.
Westerner, Am. S. S.	Antwerp	Boston	39 30 N.	49 00 W.	7th	2 a., 8th	8th	29.80	ENE	ENE., 10	ENE	ENE, 11	Steady.
Tegucigalpa, Hond. S. S.	Vera Cruz	New Orleans	20 00 N.	96 00 W.	9th	7 p., 9th	10th	29.82	WNW	WNW, 8	WNW	WNW, 8	Do.
Incomore, Br. S. S.	Belfast	New York	50 41 N.	42 23 W.	11th	8 a., 11th	12th	29.63	WNW	NW, 8	W	NW, 10	WNW.-NW.
City of St. Joseph, Am. S. S.	New York	Mediterranean	38 01 N.	13 48 W.	10th	4 a., 11th	11th	29.90	NNW	NNE., 9	N	NNW, 9	NNW.-NNE.
E. R. Kemp, Am. S. S.	Houston	Portsmouth, Va.	26 40 N.	88 15 W.	11th	10 p., 11th	12th	29.75	S	S	S	—, 8	S.-SW.
Sixsols, Am. S. S.	New York	Kingston	34 48 N.	73 59 W.	12th	Mid., 12th	13th	29.61	SE	SE., 10	W	—, 10	S.-W.-N.
Atenas, Am. S. S.	New Orleans	Cristobal	27 54 N.	87 50 W.	12th	4 a., 12th	12th	29.76	S	S., 7	W	SW, 8	S.-W.
Columbia, Am. S. S.	Cristobal	New York	34 20 N.	75 55 W.	11th	Mid., 12th	13th	29.60	ENE	SW, 9	SW	SE., 9	SE.-SSW.
United States, Dan. S. S.	New York	Christian-sand	40 47 N.	68 37 W.	13th	7 a., 13th	14th	29.41	SE	SE., 9	SSW	SE., 9	SE.-SSW.
Albert Ballin, Ger. S. S.	Hamburg	New York	41 41 N.	64 00 W.	14th	6 p., 14th	16th	29.27	WSW	W., 9	NW	W., 9	WSW.-W.
Leguna, Br. M. S.	Colon	Santander	40 18 N.	18 30 W.	14th	—, 14th	16th	29.57	SW	NW, 7	N	NW, 8	SE.-NW.
Virginia, Am. S. S.	Jacksonville	Port Arthur	22 22 N.	97 16 W.	15th	4 a., 15th	16th	29.90	N	N	N	N, 10	Steady.
El Oriente, Am. S. S.	New York	Galveston	36 00 N.	74 50 W.	15th	2 p., 15th	16th	29.63	S	S	S	—, 10	Do.
Hoosac, Br. S. S.	Halifax	Liverpool	47 54 N.	47 57 W.	15th	S p., 15th	17th	29.19	WSW	WSW	N	—, 11	WSW.-N.
Pres. Roosevelt, Am. S. S.	Cherbourg	New York	47 00 N.	36 20 W.	15th	Mid., 15th	16th	29.44	S	SW, 8	NNW	SSW, 10	SW.-WSW.
American Press, Am. S. S.	New Orleans	Glasgow	37 40 N.	67 53 W.	16th	1 p., 16th	16th	29.71	S	W., 10	NW	W., 10	S.-W.
Rochambeau, Fr. S. S.	Havre	New York	49 30 N.	35 00 W.	16th	—, 16th	17th	29.34	S	S., 10	N	S., 12	SW.-SSW.
Parthenia, Br. S. S.	Montreal	Glasgow	56 03 N.	23 42 W.	16th	7 a., 16th	16th	29.95	SW	SSW, 10	SSW	SSW, 10	W.-NNW.
Patris, Fr. S. S.	Palermo	New York	36 57 N.	55 39 W.	17th	6 p., 17th	19th	29.92	W	W., 7	NW	NNW, 10	Steady.
Venezuela, Du. S. S.	Dover	Barbados	36 10 N.	35 20 W.	20th	4 p., 20th	21st	29.82	WNW	WNW, 7	WNW	WNW, 8	SW.-N.
Atenas, Am. S. S.	Cristobal	New Orleans	18 06 N.	86 10 W.	22d	11 a., 22d	22d	29.85	SW	SW, 5	NW	NW, 8	SE.-SW.
Beneddijk, Du. S. S.	Rotterdam	New York	41 13 N.	65 07 W.	23d	11 a., 23d	23d	29.21	SSE	Calm	Calm	—, 10	SE.-NW.-N.
Sinsinawa, Am. S. S.	Valencia, Spain	do	32 59 N.	38 03 W.	23d	Noon, 23d	24th	29.57	SE	NW, 7	N	N, 9	SE.-NW.-N.
Republic, Am. S. S.	New York	Cobh, Ireland	42 00 N.	52 55 W.	23d	2 a., 25th	25th	29.40	SSE	S., 8	SW	SE., 11	SE.-SW.
Suovic, Br. S. S.	Oran	Philadelphia	35 40 N.	50 39 W.	26th	1 a., 27th	28th	29.85	SSW	NW, 10	N	NW, 10	SSW.-NW.-N.
American Press, Am. S. S.	New Orleans	Glasgow	55 18 N.	9 30 W.	28th	5 a., 28th	28th	30.03	N	NNW	N	NNW, 8	N.-NNW.
War Nizam, Br. S. S.	Curacao	Rotterdam	38 20 N.	37 06 W.	28th	4 p., 30th	Dec., 2d	29.55	WNW	NNW, 7	NW	NW, 8	NNW.-N.
San Jacinto, Am. S. S.	Galveston	New York	25 25 N.	85 38 W.	29th	4 p., 30th	Dec. 1st	29.66	NE	NE., 8	WNW	NE., 8	NE.-N.
NORTH PACIFIC OCEAN													
West Faralon, Am. S. S.	San Francisco	Yokohama	34 20 N.	143 E.	2d	2 a., 3d	3d	29.51	NNW	NE	N	NE., 8	Variable.
Pres. Madison, Am. S. S.	Seattle	do	51 38 N.	165 17 W.	1st	10 a., 3d	4th	29.02	NNW	W., 8	W	W, 10	SSE.-W.
Iyo Maru, Jap. S. S.	Victoria	do	52 N.	168 59 W.	4th	10 a., 5th	6th	28.53	SSE	SSE., 7	SW	SSE., 10	SSE.-SW.
India Arrow, Am. S. S.	Shanghai	San Francisco	41 12 N.	163 28 E.	6th	6 a.	5th	29.41	NW	NW, 5	NNW	NW, 8	NW.-NNW.

## Ocean gales and storms, November, 1925—Continued

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Highest force of wind and direction	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH PACIFIC OCEAN—Continued													
West Cayote, Am. S. S.	Japan	San Francisco	46 30 N.	171 40 E.	5th	7 p., 5th	7th	9.221	SSE	SSE., 8	WNW	W., 11	SSE.-SSW.-W.
Havre Maru, Jap. S. S.	do	Coos Bay	47 50 N.	138 18 W.	6th	4 a., 6th	7th	29.09	NW	SE., 8	WSW	S., 11	SE.-WSW.
Tokiwa Maru, Jap. S. S.	Yokohama	Victoria	47 13 N.	170 10 E.	5th	4 a., 6th	8th	28.68	S	W., 11	W	W., 11	SW.-W.
Oakridge, Am. S. S.	Davao, P. I.	Columbia R.	45 53 N.	146 28 W.	5th	9 p., 9th	10th	29.10	SE	W., 7	W	W., 11	WSW.-W.
West Prospect, Am. S. S.	Manila	San Francisco	42 N.	173 30 W.	5th	2 a., 5th	12th		SSE	SSE., 10	W	W., 11	Steady.
Makana, Am. S. S.	Everett	Kahului	44 18 N.	131 32 W.	9th	4 a., 9th	9th	29.55	SE	SE., 8	SE	SE., 8	Do.
Varanger, Nor. S. S.	San Pedro	Vancouver	48 02 N.	125 W.	8th	4 a., 9th	11th		NW	NW., 11	NW	NW., 11	Do.
India Arrow, Am. S. S.	Shanghai	San Pedro	45 46 N.	147 47 W.	11th	3 p., 11th	15th	29.29	SSW	NW., 8	NW	NW., 9	Do.
(An unknown S. S.)		Southward	17 N.	102 W.	10th	2 a., 11th	11th	29.19	NE	NW., 11	NW	NW., 11	Do.
Iyo Maru, Jap. S. S.	Victoria	Yokohama	44 10 N.	155 30 E.	12th	8 p., 12th	13th	28.98	ESE	SW., 12	W	SW., 12	SW.-W.
West Cayote, Am. S. S.	Japan	San Francisco	48 45 N.	138 15 W.	12th	3 a., 12th	13th	29.49	S	S., 8	S	S., 11	Steady.
Yokohama Maru, Jap. S. S.	Yokohama	Victoria	41 02 N.	153 42 E.	13th	Noon, 14th	15th	29.13	ESE	NW., 8	NNW	NW., 9	ESE.-S.-NNW.
West Himrod, Am. S. S.	Seattle	Kobe	48 10 N.	170 22 E.	13th	8 a., 13th	16th	29.31	SSE	SSE., 8	SW	WSW., 11	SW.-WSW.
West Jessup, Am. S. S.	Davao, P. I.	Portland	40 09 N.	167 04 E.	14th	4 a., 15th	15th	29.66	SSW	W., 10	NW	W., 10	WSW.-W.
Iwatesan Maru, Jap. S. S.	Yokohama	San Francisco	41 25 N.	155 35 E.	14th	2 p., 14th	15th	29.28	S	NW., 8	NNW	NNW., 10	Variable.
Shenandoah, Am. S. S.	Los Angeles	Port Arthur	15 08 N.	97 27 W.	16th	7 p., 16th	17th	29.86	NNE	N., 8	N	NW., 10	N.-NE.
Melyo Maru, Jap. S. S.	Muroran	Vancouver	42 27 N.	149 35 E.	16th	6 a., 17th	17th	29.40	NW	NW., 9	NNW	NW., 9	NW.-WNW.
West Carmona, Am. S. S.	Hongkong	San Francisco	39 50 N.	159 26 W.	18th	6 a., 19th	19th	29.74	SSE	SSW., 8	SW	S., 10	SSE.-S.-SW.
Grootendijk, Du. S. S.	Astoria	Balboa	14 30 N.	96 03 W.	22d	8 p., 22d	23d	29.76	NNE	NNE., 8	N	NNE., 9	Steady.
Pres. Taft, Am. S. S.	San Francisco	Yokohama	25 06 N.	165 24 W.	22d	22d	23d	29.88	NNW	NNW., 8	N	NNW., 8	SW.-NNW.
Albert Jeffreys, Am. S. S.	Norfolk	Los Angeles	13 50 N.	93 53 W.	22d	6 p., 22d	24th	29.85	NNW	NNW., 8	NE	N., 9	Do.
Emp. of Russia, Br. S. S.	Yokohama	Vancouver	48 52 N.	175 W.	25th	9 p., 25th	26th	29.18	SE	SSE., 9	WNW	SSE., 9	SW.-S.-SSE.
Tsuyama Maru, Jap. S. S.	Otaru	San Francisco	47 05 N.	170 10 E.	25th	4 a., 26th	29th	28.92	WSW	WSW., 7	WSW	SSE., 9	Do.
Tenyo Maru, Jap. S. S.	San Francisco	Yokohama	30 41 N.	141 30 W.	26th	Noon, 27th	28th	29.35	SSE	SW., 8	NNE	NW., 9	Do.
Maul, Am. S. S.	Honolulu	San Francisco	30 N.	143 W.	27th	4 a., 28th	28th	29.58	NW	NW., 7	NW	NW., 8	NW.-WNW.
Hokkai Maru, Jap. S. S.	Japan	Vancouver	50 10 N.	159 20 W.	28th	3 a., 28th	Dec. 3.	29.46	SSW	S	SW	S., 10	S.-SSW.

1 Uncorrected.

## NORTH PACIFIC OCEAN

By WILLIS EDWIN HURD

After the rather unusual breaking down of the North Pacific anticyclone in October, the November observations show its fairly complete establishment over the central waters of the eastern part of the ocean. On the 23d, however, its center lay north of Midway Island, or well to the west of its normal position. At this time a small, shallow low developed east of the Hawaiian Islands. The low spread and moved northeast and by the 27th and 28th had covered the entire water area east of 150° W. and south of 50° N., except in the equatorial region, with moderate gales in the western quadrants. At the close of the month it had merged with the cyclone then covering Alaska and adjacent waters. The HIGH at the end of the month had moved to a position north of the Hawaiian Islands midway between the trough to the east and another cyclone of little-known intensity which had developed near Midway Island on the 29th.

The Aleutian cyclone was strongly developed during most of the month, and pressures were below normal from Juneau westward to the 180th meridian. In fact, no high-pressure readings occurred over the Aleutians and southwestern Alaska, and it was on only one or two days here that there were readings in excess of 30 inches. These conditions are well shown by the following table of atmospheric pressures for several island and coast stations:

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	Inches	Inches		Inches	
Dutch Harbor <sup>1</sup>	29.38	-0.21	30.04	23d	28.72	19th.
St. Paul <sup>1</sup>	29.44	-0.18	30.04	do	28.34	28th.
Kodiak <sup>1</sup>	29.33	-0.21	30.06	2d	28.62	10th.
Midway Island <sup>1,2</sup>	30.10	+0.03	30.30	22d	29.64	29th.
Honolulu <sup>3</sup>	30.03	0.00	30.12	14th	29.87	4th.
Juneau <sup>1</sup>	29.68	-0.08	30.34	20th	29.02	10th.
Tatoosh Island <sup>1,4</sup>	30.02	+0.05	30.62	do	29.40	Do.
San Francisco <sup>1,4</sup>	30.13	+0.03	30.46	14th	29.87	23d.
San Diego <sup>1,4</sup>	30.05	+0.05	30.28	do	29.83	Do.

<sup>1</sup> P. m. observations only.<sup>2</sup> 28 days.<sup>3</sup> A. m. and p. m. observations.<sup>4</sup> Corrected to 24-hour mean.

November was one of the three stormy months thus far occurring in 1925. Along the northern steamer routes, or, roughly, between the 40th and 53d parallels, gales of force 8 or over occurred somewhere daily and, as gathered from the various reports, gales of force 11 to 12 were experienced by vessels on eight days. These were the 6th, 9th, 11th, 12th, 13th, 15th, 20th, and 28th. The 6th, perhaps, showed the most widespread area of tempestuous winds, since gales of force 11 were reported on that day from near 47° N., 177° E., 46° N., 165° W., and 48° N., 138° W., in addition to gales of lesser severity in other parts of the sea. On the 13th whole gales to storm winds occurred over a considerable area in east and west longitudes. On the 12th occurred the only hurricane velocity recorded, that being noted in 44° 10' N., 155° 30' E., by the Japanese steamer *Iyo Maru*. The American steamer *West Prospect*, while on a voyage from Manila to San Francisco, encountered gales, highest force 11, from the 5th to the 12th, between 175° W. and 135° W., nearly along the 42d parallel. Snow and other forms of frozen precipitation occurred over the northernmost traveled routes on several days.

At Honolulu east winds continued to prevail. The maximum wind velocity was 31 miles from the northeast, on the 27th. The average velocity was 10.1 miles per hour, which equals the previous highest record for November, that of 1913. The precipitation was 1.35 inches, which is 2.49 below the normal.

In the Far East there was some typhoon activity early in the month. This is fully treated in the accompanying article by the Rev. José Coronas, of the Manila Observatory.

In North American tropical waters a case of cyclonic development occurred, which is extraordinary for so late in the season. This disturbance appeared on the 10th off the coast near Acapulco, where it was experienced by a southbound vessel, whose identity was not given by the observer. The gale as experienced began from the east early on the evening of the 10th, and by midnight, in 17° N., 102° W., was blowing at force 10 from the north. Two hours later the wind had gone into northwest, force 11, lowest pressure 29.19, uncorrected. By 8 a. m. of the 11th the wind had moderated to force 7, southwest.